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09/992,899	11/05/2001	Brian Warren Woodroffe	30990131US	5681

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EXAMINER	
ALAM, UZMA	
ART UNIT	**PAPER NUMBER**
2157	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/992,899	WOODROFFE, BRIAN WARREN	
	Examiner	Art Unit	
	Uzma Alam	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This action is responsive to the request for continued examination filed February 15, 2006. Claims 1-36 are pending. Claims 1 and 36 are amended. Claims 1-36 represent a method for monitoring traffic in a telecommunications network.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-22, 26, 29, 30, 34 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Chapman et al. US Patent No. 6,028,842. Chapman teaches the invention as claimed including dynamic traffic conditioning (see abstract).

3. As per claims 1 and 36, Chapman teaches a method and apparatus of classifying data traffic in a packet-based communications network conveying different classes of data, including the steps of:

(a) monitoring a communications network for data traffic to identify a sequence of data packets of unknown class transmitted between a source address and a destination address (a sequence of packets is transmitted from a source to a destination; column 3, lines 7-36);

(b) measuring at least one parameter of at least a significant part of the packet sequence, said parameter being any one of: coding attributes of packets in the sequence; type of transport

protocol used; type of error protection protocol used; duration of said sequence; and correlation between traffic in said sequence and traffic in a further sequence being transported from said destination address back to said source address (checking header of packet and classifying packet; column 3, lines 7-36); and

(c) deriving from the measured parameter a probable classification of the data conveyed in the packet sequence (based on the header content, classifying packet; column 3, lines 12-14).

4. As per claim 2, Chapman teaches a method as claimed in claim 1 where the classification is between real-time data traffic and other data in the network (column 4, lines 20-28).

5. As per claim 3, Chapman teaches a method as claimed in claim 2 wherein the classification distinguishes between voice traffic and other traffic (column 4, lines 9-19).

6. As per claim 4, Chapman teaches a method as claimed in claim 1 wherein the classification distinguishes between video traffic and other traffic (column 4, lines 20-28).

7. As per claim 5, Chapman teaches a method as claimed in claim 1 where in step (b) a plurality of different parameters are measured (column 3, lines 11-14; column 4, lines 61-67; column 5, lines 1-6).

8. As per claim 6, Chapman teaches a method as claimed in claim 1 where in step (c) said classification is determined by a combination of processes based on different parameters, the

results of each process being combined with the others in accordance with a specific weighting (column 6, lines 9-35).

9. As per claim 7, Chapman teaches a method as claimed in claim 1 where the measured parameter is the duration of said sequence, and sequences of longer duration are taken to indicate a high probability of real-time traffic (column 5, lines 56-67).

10. As per claim 8, Chapman teaches a method as claimed in claim 1 wherein the measured parameter is correlation between traffic in said sequence and traffic in a further sequence being transported from said destination address back to said source address, and correlation of periods of activity in one direction with periods of inactivity in the reverse direction is taken as an indicator of voice or videoconference traffic (column 5, lines 56-67).

11. As per claim 9, Chapman teaches a method as claimed in claim 1 wherein a plurality of parameters are measured, including timing parameters of individual packets within the sequence (column 5, lines 56-67).

12. As per claim 10, Chapman teaches a method as claimed in claim 9 where statistical analysis of the parameters is used to determine said classification (column 6, lines 1-7).

13. As per claim 11, Chapman teaches a method as claimed in claim 1 wherein a plurality of parameters are measured, including timing parameters of events in the sequence (column 5, lines 56-67).

14. As per claim 12, Chapman teaches a method as claimed in claim 11 wherein step (c) includes (i) deriving from the measured timing parameters one or more statistical properties of packet timing during at least a part of the sequence; and (ii) using said statistical properties to determine said classification (column 5, lines 56-67; column 6, lines 1-7).

15. As per claim 13, Chapman teaches a method as claimed in claim 12 where said events comprise the arrival of each new packet for the sequence under investigation (column 5, lines 56-67).

16. As per claim 14, Chapman teaches a method as claimed in claim 11 wherein the measured parameters include the intervals between events within said sequence (column 5, lines 56-67).

17. As per claim 15, Chapman teaches a method as claimed in claim 14 wherein the uniformity of said intervals over a significant part of the sequence is taken to indicate a high probability of real-time traffic (column 6, lines 1-7).

18. As per claim 16, Chapman teaches a method as claimed in claim 15 wherein the intervals have a maximum duration of 20 ms (column 5, line 44).

19. As per claim 17, Chapman teaches a method as claimed in claim 12 wherein the step (c)(i) includes filtering events to restrict the events whose measured parameters are included in the derivation of said statistical properties (column 4, lines 20-28).

20. As per claim 18, Chapman teaches a method as claimed in claim 17 wherein said filtering is performed so as to eliminate periods of inactivity from consideration in deriving said statistical properties (column 4, lines 55-60).

21. As per claim 19, Chapman teaches a method as claimed in claim 1 wherein said sequence is divided for analysis into a sequence of shorter measurement periods, and filtering is performed by reference to measurements from one measurement period at a time (column 4, lines 55-60).

22. As per claim 20, Chapman teaches a method as claimed in claim 19 wherein said period is typically 100 ms (column 5, line 44).

23. As per claim 21, Chapman teaches a method as claimed in claim 19 wherein the filtering operates to omit or delete certain measurements from derivation of statistical properties of the measurements, or modifies those measurements and/or the statistical properties in some predetermined way (column 4, lines 33-43).

24. As per claim 22, Chapman teaches a method as claimed in claim 19 wherein only measurement periods preceded by periods containing significant activity are included in subsequent analysis (column 4, lines 55-60).

25. As per claim 26, Chapman teaches a method as claimed in claim 1 including steps to compensate for variations in the packet arrival or other event times caused by outside influences and to accommodate specific traffic patterns, such as when the absence of a signal can lead to a misinterpretation of the data (column 4, lines 33-43; column 6, lines 1-7).

26. As per claim 29, Chapman teaches a method as claimed in claim 1 wherein said measurement includes further measurements of correlation between parameters of traffic in opposite directions of a duplex connection (column 4, lines 9-19).

27. As per claim 30, Chapman teaches a method as claimed in claim 29 where correlation between periods of high traffic in one direction and low traffic in the other are used as an indicator of voice traffic (column 4, lines 9-19).

28. As per claim 34, Chapman teaches a method as claimed in claim 1 wherein the determined classification is used to automatically control configuration of the network (column 3, lines 22-50).

Claim Rejections - 35 USC § 103

29. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

30. Claims 23-25 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman et al US Patent No. 6,028,842 in view of Rueda et al US Patent No. 6,597,600. Rueda teaches a method for real time traffic analysis (see abstract).

31. As per claim 23, Chapman teaches a method as claimed in claim 19. Chapman does not teach wherein the first measurement within each measurement period is discarded to eliminate bias in the measurements made. Rueda teaches wherein the first measurement within each measurement period is discarded to eliminate bias in the measurements made. See column 10, lines 5-67; column 11, lines 1-40. It would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the statistics of Chapman with the measurements of Rueda. A person of ordinary skill in the art would have been motivated to do this so the information regarding traffic can be derived at different time scales.

32. As per claim 24, Chapman teaches a method as claimed in claim 19. Chapman does not teach wherein a separate record of the first measurement within each measurement period is kept which is later removed from a population for that measurement period. Rueda teaches wherein a

separate record of the first measurement within each measurement period is kept which is later removed from a population for that measurement period. See column 10, lines 5-67; column 11, lines 1-40. It would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the statistics of Chapman with the measurements of Rueda. A person of ordinary skill in the art would have been motivated to do this so the information regarding traffic can be derived at different time scales for real time traffic analysis.

33. As per claim 25, Chapman teaches a method as claimed in claim 1. Chapman does not teach wherein the amount of raw data obtained by monitoring network traffic is reduced by aggregating data for separate measurement periods, and optionally for groups of measurement periods. Rueda teaches wherein the amount of raw data obtained by monitoring network traffic is reduced by aggregating data for separate measurement periods, and optionally for groups of measurement periods. See column 10, lines 5-67; column 11, lines 1-40. It would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the statistics of Chapman with the data of Rueda. A person of ordinary skill in the art would have been motivated to do this for real time traffic analysis.

34. As per claim 27, Chapman teaches a method as claimed in claim 26. Chapman does not teach wherein errors due to the inter-packet arrival time are normalised against an expected arrival time. Rueda teaches wherein errors due to the inter-packet arrival time are normalised against an expected arrival time. See column 8, lines 19-31; column 15, lines 28-67; column 1, lines 1-55. It would have been obvious to a person of ordinary skill in the art at the time of the

invention to combine the statistics of Chapman with the data of Rueda. A person of ordinary skill in the art would have been motivated to do this for real time traffic analysis and for performance prediction.

35. As per claim 28, Chapman teaches a method as claimed in claim 27. Chapman does not teach wherein an internal time reference is compared with arriving data packets so as to measure differences between actual arrival times and predicted arrival times. Rueda teaches wherein an internal time reference is compared with arriving data packets so as to measure differences between actual arrival times and predicted arrival times. See column 8, lines 19-31; column 15, lines 28-67; column 1, lines 1-55. It would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the statistics of Chapman with the data of Rueda. A person of ordinary skill in the art would have been motivated to do this for real time traffic analysis and for performance prediction.

36. Claims 31 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapan US Patent No. 6,028,842 in view of Jorgenson US Patent No. 6,640,248. Jorgenson teaches the invention as claimed including application resource allocator (see abstract).

37. As per claim 31, Chapman teaches a method as claimed in claim 1. Chapman does not teach wherein additional measurements are used to distinguish multiple from single voice circuits and, where a connection is carrying multiple voice circuits, to take account of the

particular attributes of such a connection. Jorgenson teaches wherein additional measurements are used to distinguish multiple from single voice circuits and, where a connection is carrying multiple voice circuits, to take account of the particular attributes of such a connection. See column 13, lines 56-67; column 14, lines 1-14; column 29, lines 42-67; column 30, lines 11-30. It would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the measuring of Chapman with measurements of Jorgenson. A person of ordinary skill in the art would have been motivated to do this to provide true Quality of Service.

38. As per claim 35, Chapman teaches a method as claimed in claim 1. Chapman does not teach further comprising using the determined classification to report usage of the network for accounting purposes. Jorgenson teaches using the determined classification to report usage of the network for accounting purposes. See column 80, lines 15-35. It would have been obvious to a person of ordinary skill in the art at the time of the invention to combine classifying of Chapman with reporting usage of Jorgenson. A person of ordinary skill in the art would have been motivated to do this to allocate resources properly and to not congest the network with extra traffic.

39. Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman et al US Patent No. 6,028,842 in view of Dietz et al. US Patent No. 6,651,099. Dietz teaches the invention as claimed including monitoring traffic in a data network (see abstract).

40. As per claim 32, Chapman teaches a method as claimed in claim 1. Chapman does not teach wherein timestamping of captured and re-assembled data packets is carried out on closure of the bit stream representing a data packet and written contiguous with the packet. Dietz teaches timestamping of captured and re-assembled data packets is carried out on closure of the bit stream representing a data packet and written contiguous with the packet. See column 20, lines 27-65. It would have been obvious to a person of ordinary skill in the art at the time of the invention to combine monitoring of Chapman with timestamping of Jorgenson. A person of ordinary skill in the art would have been motivated to do this to characterize flow.

41. As per claim 33, Chapman teaches a method as claimed in claim 1. Chapman does not teach wherein the process of timestamping packets is carried out separately from the detection and assembling of data packets. Dietz teaches the process of timestamping packets is carried out separately from the detection and assembling of data packets. See column 20, lines 27-65. It would have been obvious to a person of ordinary skill in the art at the time of the invention to combine monitoring of Chapman with timestamping of Jorgenson. A person of ordinary skill in the art would have been motivated to do this to characterize flow.

Response to Arguments

42. Applicant's arguments filed February 15, 2006 have been fully considered but they are not persuasive.

43. Applicant argues that Chapman does not teach analyzing a significant part of the packet sequence to determine whether the flow is employing UDP.

44. As per Applicant's arguments that a significant part of the packet sequence is not analyzed, Applicant is directed to column 3, lines 55-64. In this part of the reference, Chapman teaches analyzing most, if not all the packets in a sequence.

45. Also, in column 2, lines 35-45 and 5, lines 62-65, Chapman teaches that the whole packet flow is checked and continuously monitored.

46. Hence, Chapman reads on the limitations of analyzing a significant part of the packet sequence.

47. As per Applicant's arguments that Chapman does not teach measuring a significant part of the packet sequence to verify that UDP is carried out, Examiner asserts that the Claim 1 does not discuss verifying the use of UDP but discloses a method of classifying data traffic in a packet based communication network conveying different classes of data, which is taught by Chapman.

48. As per Applicant's arguments that the reference Chapman et al. US Patent No. 6,028,842 does not teach measuring a plurality of parameters selected from the queue. Applicant is directed to column 5, lines 44 and lines 52-65, where multiple parameters are measured, such as flow rate and duration of the flow and the type of protocol used.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Uzma Alam whose telephone number is (571) 272-3995. The examiner can normally be reached on Monday-Tuesday 5:30 AM - 2:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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